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OFFICE OF SECRETARY  
RULEMAKINGS AND  
ADJUDICATIONS STAFF

July 27, 2007

Ms. Annette L. Vietti Cook  
Secretary  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555-0001

Attention: Rulemaking and Adjudications Staff

Public Comment on PRM-50-84:  
PRM-50-84 and MELLLA+

Dear Ms. Vietti Cook

The need to implement PRM-50-84 is clearly illustrated by the NRC's incomplete evaluations of GENERAL ELECTRIC (GE) LICENSING TOPICAL REPORTS ON MAXIMUM EXTENDED LOAD LINE LIMIT ANALYSIS PLUS (MELLLA+) AND APPLICABILITY OF GE METHODS TO EXPANDED OPERATING DOMAINS.

The NRC's evaluators of MELLLA+ completely overlooked the impact of crud deposits on fuel elements. The reviewers of PRM-50-84 should study the ACRS letter of June 22, 2007, Shack to Reyes, MLO71760346. Following are quotations from that letter.

**A number of design developments enable operation in the MELLLA+ domain. The most important are: (1) fuel design features that accommodate operation at the higher power / lower flow conditions while maintaining acceptable fuel performance; and (2) a new detect and suppress system that provides protection against power and flow oscillations, which may arise more easily at higher powers and lower flows.**

**The Safety Evaluations were very demanding tasks for which the staff should be commended. The staff performed thorough evaluations and carried out convincing confirmatory analyses where tools were available, such as for the reactor physics and fuel related issues. Unfortunately, the staff did not have the thermal-hydraulic code capability that would have been needed to independently confirm some important parts of the evaluation such as ATWS instability. The TRACE thermal-hydraulic system analysis code has the capabilities needed to address such issues.**

**As recommended in our March 22, 2007 report, the TRACE code developmental work should be completed expeditiously to enable its incorporation into the regulatory process.**

The reviewers of PRM-50-84 may note that among the fuel design features that accommodate operation at the higher power / lower flow conditions there is no allowance for the impact of crud deposits.

The reviewers may further note that the so-called thorough evaluations of MELLA+ by the NRC staff did not include any attention to the impact of crud deposits on fuel related issues. Regarding TRACE, even if it becomes operational, it has no specifications that incorporate the impact of crud deposits.

This letter cites the lack of allowances for crud deposits in the NRC's evaluations of MELLA+. Crud deposits are ubiquitous among the worldwide fleet of LWRs, and the issues are of very high safety significance.

Robert H. Leyse

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